ABSTRACT

Disclosed herein is a rotational phase difference detecting system and method that is capable of very accurately detecting a rotational phase difference between a plurality of rotating bodies. There is also disclosed a machine operating-state monitoring system and method employing the rotational phase difference detecting system. The detecting system has a first rotating body (13) with a first mark (12), a second rotating body (11) with a second mark (10), a mark sensor (4) for detecting the first mark, a first camera (2) for imaging the second mark when the mark sensor detects the first mark, and a display section (7) for displaying the second mark imaged by the first camera. The rotational phase difference is detected from a position of an image of the second mark displayed on the display section and is thus detected very accurately with a simple construction comprising the mark sensor, the first camera, and the display section.